

What is Claimed is:

1 1. A method for handing over of a connection from a
2 first serving GPRS support node (SGSN) to a second SGSN in
3 response to an inter SGSN routing area update, the method
4 comprising the steps of:

5 operating the first SGSN as a temporary anchor in
6 response to the inter SGSN routing area update; and

7 redirecting signaling traffic to and from the
8 second SGSN via the first SGSN while the first SGSN is
9 operating as the temporary anchor.

1 2. The method of claim 1, further comprising the step
2 of initiating the inter SGSN routing area update in response
3 to a mobile station moving from a first SGSN service area
4 associated with the first SGSN to a second SGSN service area
5 associated with the second SGSN.

1 3. The method of claim 1, wherein the step of
2 redirecting further comprises the step of establishing a
3 temporary leg between the first SGSN and the second SGSN.

1 4. The method of claim 3, wherein the step of
2 redirecting further comprises the step of redirecting the
3 signaling traffic from the first SGSN to the second SGSN via
4 the temporary leg.

1 5. The method of claim 3, wherein the step of
2 establishing the temporary leg comprises the step of
3 establishing a Gb channel between the first SGSN and the
4 second SGSN.

1 6. The method of claim 3, further comprising the step
2 of transferring connection control from the first SGSN to the
3 second SGSN in response to the connection being maintained by
4 the first SGSN entering a standby state.

1 7. The method of claim 6, wherein the step of
2 transferring further comprises the step of performing the
3 inter SGSN routing area update between a Gateway GPRS support
4 node (GGSN) and the second SGSN.

1 8. The method of claim 6, wherein the step of
2 transferring connection control is performed without
3 interrupting layer 3 procedures and data transmission.

1 9. The method of claim 6, further comprising the step
2 of releasing the temporary leg in response to completion of
3 the transfer of connection control from the first SGSN to the
4 second SGSN.

1 10. The method of claim 9, further comprising the step
2 of communicating subsequent signaling traffic directly
3 between a Gateway GPRS support node (GGSN) and the second
4 SGSN without redirecting the subsequent signaling traffic via
5 the first SGSN, the subsequent signaling traffic occurring
6 after the release of the temporary leg.

1 11. The method of claim 6, further comprising the steps
2 of:

3 allowing subscriber charging transactions to be
4 completed towards a billing gateway before performing the
5 step of transferring connection control to the second SGSN;
6 and

7 resuming subscriber charging towards the billing
8 gateway in response to completion of the transfer of
9 connection control to the second SGSN.

1 12. A system for handing over of a connection between
2 at least two GPRS nodes in response to an inter SGSN routing
3 area update, the system comprising:

4 a first SGSN operating as a temporary anchor in
5 response to the inter SGSN routing area update; and

6 a second SGSN in communication with the first SGSN,
7 the first SGSN redirecting signaling traffic to and from the
8 second SGSN via the first SGSN while the first SGSN is
9 operating as the temporary anchor.

1 13. The system according to claim 12, further
2 comprising a mobile station operating in a first SGSN service
3 area associated with the first SGSN, the inter SGSN routing
4 area update being initiated upon the mobile station moving
5 from the first SGSN service area to a second SGSN service
6 area associated with the second SGSN.

1 14. The system of claim 12, wherein the redirecting of
2 signaling traffic further including establishing a temporary
3 leg between the first SGSN and the second SGSN.

1 15. The system of claim 14, wherein the redirecting
2 further includes the step of redirecting the signaling
3 traffic from the first SGSN to the second SGSN via the
4 temporary leg.

1 16. The system of claim 14, wherein the establishing
2 the temporary leg comprises establishing a Gb channel between
3 the first SGSN and the second SGSN.

1 17. The system of claim 14, further including
2 transferring connection control from the first SGSN to the
3 second SGSN in response to the connection being maintained by
4 the first SGSN entering a standby state.

1 18. The system of claim 17, wherein the transferring
2 further includes performing the inter SGSN routing area
3 update between a Gateway GPRS support node (GGSN) and the
4 second SGSN.

1 19. The system of claim 17, wherein transferring
2 connection control is performed without interrupting layer 3
3 procedures and data transmission.

1 20. The system of claim 17, further comprising
2 releasing the temporary leg in response to completion of the
3 transfer of connection control from the first SGSN to the
4 second SGSN.

1 21. The system of claim 20, further comprising
2 communicating subsequent signaling traffic directly between
3 a Gateway GPRS support node (GGSN) and the second SGSN
4 without redirecting the subsequent signaling traffic via the
5 first SGSN, the subsequent signaling traffic occurring after
6 the release of the temporary leg.

1 22. The system of claim 6, further comprising:
2 allowing subscriber charging transactions to be
3 completed towards a billing gateway before performing the
4 step of transferring connection control to the second SGSN;
5 and
6 resuming subscriber charging towards the billing
7 gateway in response to completion of the transfer of
8 connection control to the second SGSN.

1 23. A method for handing over of a connection between
2 GPRS support nodes (SGSN), the method comprising the steps
3 of:
4 receiving a routing update;
5 forming a temporary leg between an old and a new
6 SGSN after receiving the routing update; and
7 redirecting signaling traffic across the temporary
8 leg.

1 24. The method according to claim 23, further
2 comprising:
3 releasing the temporary leg; and
4 communicating subsequent payload traffic between a
5 GPRS and and the new SGSN.

1 25. The method according to claim 23, wherein the old
2 SGSN forms a temporary anchor.

1 26. The method according to claim 23, further
2 comprising:
3 communicating a context forward message from the
4 old SGSN to the new SGSN;
5 receiving a context forward acknowledgment from the
6 new SGSN; and
7 releasing the temporary leg after receiving the
8 context forward acknowledgment.